MARYLAND HISTORICAL TRUST DETERMINATION OF ELIGIBILITY FORM

NR Eligible: yes ____

Property Name: Building E3244	Inventory Number: HA-2090
Address: Edgewood Area	Historic district: yes X no
City: Aberdeen Proving Ground (APG) Zip Code: 21210	County: Harford
USGS Quadrangle(s): Edgewood	
Property Owner: US Army Garrison, APG	Tax Account ID Number:
Tax Map Parcel Number(s): Tax Map Num	ber:
Project: New Roof and Air Handling Unit for E3244 (Cold War Era PropAgeno	cy: US Army Garrison, APG
Agency Prepared By: RC Goodwin & Associates	
Preparer's Name: Dean Doerrfeld	Date Prepared: 12/15/2006
Documentation is presented in:	
Preparer's Eligibility Recommendation: X Eligibility recommended	Eligibility not recommended
Criteria: A X B C D Considerations: A	BCDEF X_G
Complete if the property is a contributing or non-contributing resour	rce to a NR district/property
Name of the District/Property:	~ ~ ~ ~
Inventory Number: Eligible: y	es Listed: yes
Site visit by MHT Staff yes X no Name:	Date:
Building E3244 is a rectangular building constructed of concrete masonry units Its principal elevation is oriented to the west. Rising from a slab foundation, the holding few wall penetrations and no ornament. Essentially two bays, the length metal, double-leaf door near its northern end. An entry vestibule lies near the seplane of the wall approximately twelve feet. This shed-roofed addition is also comby metal, double-leaf doors. The north gable end of the building is pierced by a single window near its western edge. A small window lies near the apex of the sash and topped by concrete lintels. The doors all contain louvered openings. Some numerous locations and the ridgeline of the roof is marked by numerous cyclone purification units line the longitudinal wall, connected to the building by large of extends well above the eave of the building. The eaves are variously sheathed with main gable-roofed mass and shed addition are covered with asphalt shingles. Consideration of the same provided to the shingles.	e building clearly expresses its utilitarian purpose hy, longitudinal wall of the building is pierced by pouthern edge of the façade and projects from the constructed of concrete masonry units and accessed centrally located, metal, double-leaf door and a gable. All windows appear to be single-light, fixed steam and condensate lines enter the building at eventilators and exhaust vents. Several exhaust-air ductwork. An exhaust stack rises from each unit are with aluminum and vinyl siding. The roofs of the
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Eligibility recommended Eligibility not recommended	a a
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Building E3244

Page 2

served as a research laboratory.

Historic Context Cold War (1946-1989)

The Cold War era generally is defined as the period beginning in 1946 following Soviet activities to retain territory liberated from Nazi Germany during World War II and extending to the fall of the Berlin wall in 1989. This period was marked by a tense, hostile relationship between the Warsaw Pact countries led by the U.S.S.R. and the North Atlantic Treaty Organization (NATO) Allies led by the U.S.A. The primary role of the U.S. Army during this time was to support U.S. policies of peace through strengtly by maintaining ground force readiness as an alternative to strategic nuclear weapons to deter communist expansion (U.S. Army Environmental Center (AEC) 1997).

The Cold War era was marked by major organizational changes in the armed forces and accompanied by competition for limited military appropriations among the services. Under the 1947 National Security Act, the Air Force became autonomous from the Army, and the Department of Defense was created. Under the new organizational structure, the Army assumed responsibility for conducting land warfare, providing troops for occupation duty in Central Europe, and providing air defense units within the continental U.S. In 1962, the Army's technical services were disbanded, and the Army Materiel Command (AMC) was established. This new command consolidated logistical functions to ensure integrated materiel management, including new product development, management of materiel stockpiles, testing, and technical and maintenance support (AEC 1997). The Ordnance Department and the Chemical Corps activities at APG were transferred to AMC.

The Cold War era also was marked by significant changes in U.S. Army operations. Instead of relying on a small standing army and mobilizing troops as needed, Army personnel were now ready to enter combat on short notice. This meant that a large, trained standing army was maintained in constant readiness. Troops were stationed for the first time in friendly foreign nations, under an allied command structure. Within the U.S., the Army maintained an active force prepared to deploy quickly into combat zones. During the Cold War, Army personnel were involved in conflicts in Korea and Vietnam, as well as in smaller actions, such as in the Caribbean (AEC 1997).

The Thematic Study and Guidelines: Identification and Evaluation of U.S. Army Cold War Era Military-Industrial Historic Properties (AEC 1997) identified the following significant themes for Army military-industrial history during the Cold War: basic research (laboratories); materiel development and testing (research, development, engineering centers and proving grounds); wholesale logistical operations; air defense, ballistic missile defense and army missiles; command and control, communications, computers, and intelligence; Army school system; operational forces; Army medical activities; and, miscellaneous themes including nuclear power, Army aviation, and activities associated with other services or Department of Defense agencies.

The following historic context for the Cold War era is organized according to the themes outlined in the AEC report. Edgewood Arsenal supported activities that made significant contributions to the Army's development during the Cold War era in the areas of materiel development and testing and medical activities.

The Cold War at Edgewood Arsenal.

During the Cold War era, Edgewood Arsenal functioned primarily as a center for chemical warfare research. This emphasis continued the trend established during World War II, when the historical chemical production mission of the installation was transferred to other chemical munitions arsenals. Immediately following the end of World War II, the Chemical Warfare Service (CWS) was demobilized, but a vigorous defense of the role of chemical warfare ensured its permanent existence. In 1946, the

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Army redesignated CWS as the Chemical Corps, and Edgewood Arsenal was renamed the Army Chemical Center. However, the role of chemical warfare was a hotly debated topic throughout the Cold War era. During the Cold War era, Edgewood Arsenal served as the national center for materiel development and testing (chemical warfare) and medical activities. Minor missions included wholesale logistical operations and activities undertaken by other departments and non-Army agencies that were located on the property. In 1971, Aberdeen Proving Ground and Edgewood Arsenal were joined administratively.

Materiel development and testing.

Following reorganization in 1951, Edgewood Arsenal became the Research and Engineering Center for the Chemical Corps. In 1962, the Chemical Corps was abolished. The laboratories and production facilities at Edgewood Arsenal were placed under the Chemical-Biological-Radiological Agency (CBR Agency), a subordinate element of Munitions Command under AMC. Subsequent name changes included Chemical Research and Development Center (CRDC) in 1983; Chemical Research, Development and Engineering Center (CRDEC) in 1986; and, Edgewood Research, Development and Engineering Center (ERDEC) under the U.S. Army Chemical and Biological Defense Agency (CBDA) in 1992. In 1993, the name of CBDA was changed to the U.S. Army Chemical and Biological Defense Command (CBDCOM) (Smart 1994).

The chemical laboratories located at Edgewood conducted both basic research and materiel development. The laboratories focused on the development of chemicals as tactical weapons and on defensive measures to counter chemical weapons attack. Basic research included the discovery and development of new chemical agents, incendiaries, and screening and signaling smokes Materiel development focused on improved weapons delivery and dispersal systems, including flame throwers, chemical mortars, and smoke generators. By 1953, the 4.2-inch chemical mortar developed by the Chemical Corps became a standard infantry weapon. In addition, the laboratories conducted research into the development of insecticides, rodenticides, and fungicides, as well as tear gas, non-lethal riot control agents, nerve agents, and defoliants (Brophy and Ross 1953; Smart 1994).

Research into defensive measures focused on the development of protective equipment and clothing. Improvements to gas masks for military personnel and civilians resulted in the development of a canister-less gas mask that was introduced during the late 1950s. Detection systems to alert troops to the presence of chemical agents also were researched and developed.

The discovery of chemical warfare stockpiles in the Soviet Union and Iran/Iraq during the 1980s led the Army to reexamine its chemical warfare policies, including defensive measures and retaliatory capabilities. Research efforts were directed to develop new protective gear, such as masks and full body protection, and to develop and produce new binary chemical weapons. The Army's proactive program contributed to negotiations of a bilateral chemical weapons destruction agreement with the Soviet Union 1990 (Smart 1994).

The chemical laboratories at Edgewood generally were located in the eastern portion of the installation, east of the airfield. While several laboratories were constructed during World War II, the number of laboratory buildings was increased during the Cold War era. New laboratories included Building E-3300, constructed in 1965-66 for advanced studies of supertoxic chemical compounds, radioactive materials, and toxins; Building E-3100, completed in 1967; and, Building E-5100, constructed in 1969 as a quality assurance chemical testing laboratory.

In addition to the chemical laboratories, Edgewood also was the site of a radiological laboratory to evaluate protective equipment against radioactive particles. Radiological research was introduced at Edgewood in 1949, when the Chemical Corps began to explore non-explosive radioactive materials as weapons (Smart 1994). During the Cold War era, the laboratory was responsible for significant contributions in developing procedures for transporting radioactive materials, protection criteria, dosimetry, fallout prediction codes, decontamination procedures, radiation shielding data, waste disposal equipment, vulnerability data, data compilations, and test instrumentation (Schmidt 1976).

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During the late 1950s, the radiological laboratory was installed in Building E-5695, initially constructed as a storehouse in 1941. Building E-5697, a concrete building associated with the laboratory, was constructed in 1964. The laboratory operated the Crockcroft Walton positive ion accelerator, acquired in 1960 and dismantled during the early 1970s. In 1968, the Ralph J. Truex Tandem Van de Graaf Facility (Building E-5951) was constructed. The new laboratory contained a Tandem Van de Graaf accelerator that provided beams of precise, variable, and spatially well-defined charged particles for programs in nuclear physics. The accelerator was moved to the University of Pennsylvania in 1974. The Nuclear Effects Laboratory became part of ARDC in 1964, then part of BRL in 1972. In addition to the research buildings, the Nuclear Effects Laboratory utilized 109 acres of Edgewood property as a test area (Schmidt 1976:159).

Edgewood Arsenal also functioned as a proving ground for preliminary and final engineering, user, and field tests for chemical weapons, munitions, agents, protective equipment and other chemical warfare materiel. Proving ground personnel initiated test programs, and developed field techniques and field operating procedures. The purpose of the testing program was to undertake comparative evaluation and analysis and to publish test results (Brophy and Ross 1953). Indoor testing facilities were located in the main laboratory area east of the airfield. These facilities included test chambers, environmental chambers, and a vertical wind tunnel, which was added to Building E-3360 in 1964 (EAI Corporation 1989-1996). Many outdoor tests were conducted on Gunpowder Neck or Carrolls Island.

Medical Activities.

Medical research was conducted at Edgewood Arsenal throughout the Cold War era. Initially, work was carried out by the Chemical Corps Medical Laboratories, which were divided into five divisions: Biochemistry, Physiology, Technical Services, Toxicology, and Clinical Research. Research focused on toxicological research to assist in developing chemical agents and munitions and to assess chemical hazards to personnel and military animals posed by such weapons. Other topics of research interest included wound ballistics and protective body armor; detection of chemical poisons in food and water and methods of purification; practical prophylactic and curative measures to potential chemical exposures; and, decontamination methods. Research facilities included gas chambers, air conditioned test rooms, 149 separate laboratories, and precision scientific instruments of all types (Brophy and Ross 1953).

In 1979, the former Chemical Corps Medical Laboratories were divided among several organizations. The Chemical Corps Research Division was assigned to the Office of the Surgeon General and became the Army Medical Research Institute of Chemical Defense. This laboratory continued research into methods to prevent and treat chemical and biological attacks and worked to develop protective measures, including protective clothing, breathing apparatus, and methods of decontamination (AEC 1997). The U.S. Army Environmental Hygiene Agency continued work into preventive medicine and occupational and environmental health disciplines; this agency is now named the Center for Health Promotion and Preventive Maintenance. The medical activities during the Cold War era generally occupied buildings constructed during World War II until the construction of Building E-3081 in 1979 (Smart 1994).

Wholesale Logistical Operations.

Wholesale logistical operations played a minor role at Edgewood Arsenal during the Cold War. Logistical operations included both production facilities and storage. The production facilities at Edgewood Arsenal operated as they had during World War II. The Army's main chemical production lines were located at other chemical arsenals, while the facilities at Edgewood were used primarily as experimental pilot plants to produce small orders and specialized items.

During the early 1950s, the production facilities comprised about 100 buildings, including manufacturing plants, power generating units, warehouses, utilities, and other facilities. Primary items manufactured at Edgewood included gas masks, smoke for hand

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grenades, smoke agents, and nerve agents. In addition, facilities were constructed to produce protective clothing. During the last twenty years of the Cold War era, major emphasis was placed on the development of irritant and incapacitating agents and binary munitions and agents that kept chemicals separate until deployment (Brophy and Ross 1953; U.S. Army Environmental Hygiene Agency 1989). Many of these activities occurred in buildings constructed before 1945 located on the western portion of the installation.

Storage at the Eastern Chemical Depot, which was established during World War II on the eastern portion of the installation, was used throughout the Cold War era. During the early 1950s, the depot was used to receive, store, and issue supplies, ammunition, and toxic agents to installations located along the U.S. east coast (Brophy and Ross 1953). The area is still used for storage.

Miscellaneous Activities.

Two activities located on Edgewood property were associated with national Cold War initiatives for air defense and communications. These activities were located at Edgewood because of available land rather than for any direct associations with the Cold War-era missions of the installation.

In 1955-1956, Edgewood became the site of a Nike-Ajax launch facility. The launch facility was one of seven missile sites constructed to protect Baltimore; fourteen sites also were constructed to protect Washington, D.C. The Nike missile system was a tactical air defense system developed by the U.S. Army and private contractors. Work on the system began in 1945 and missiles were deployed in the continental United States between 1954 and the early 1970s, when the system was deactivated. The site at Edgewood Area reflected the pattern typical of Nike installations with three components: (1) magazine, maintenance, and launch area; (2) administration and housing area; and, (3) radar and control area. These three areas were arranged in a linear plan extending from north to south. Construction of the site began in January 1954. When completed in 1956, the Edgewood site contained six magazines holding 30 Nike-Ajax missiles. Between 1958 and 1959, the original Nike-Ajax magazines were modified to accommodate Nike-Hercules missiles. One story barracks, administrative, and support buildings also were built during this period. The living area was separated from the main launch site by approximately one-half mile. The site was deactivated in 1974 (Goodwin 1994).

In 1971, the Federal Emergency Management Agency (FEMA) leased a site on Graces Quarters in the Edgewood Area to establish an emergency radio transmitter. The facility was designed to be part of the national emergency broadcast system. The facility comprised a metal antenna over 700 feet high and an underground concrete bunker designed to withstand a nuclear blast. The bunker was constructed as a self-contained structure to sustain personnel through the duration of an emergency. The bunker contained a transmitter room, generator room, fuel tank, utility room, and two water supply wells. The facility was closed in 1988 (Dames and Moore, Inc., 1996; Green 1998).

Identified Properties.

During the Cold War era, fewer buildings (283) were constructed at Edgewood Area than at Aberdeen Area. Housing/community support and storage facilities represent the largest categories of construction. The mission-related buildings generally were constructed in the laboratory area located east of Ricketts Point Road. A smaller number of buildings were added to the industrial plant area. The majority of construction at Edgewood is utilitarian in appearance. The laboratories exhibit the most architectural ornamentation, but generally incorporate modern utilitarian design concepts (Dunne 1998).

In general, buildings must be older than 50 years of age to be eligible for listing in the National Register of Historic Places. Properties that have achieved significance within the last 50 years may be eligible for listing in the National Register if they are of exceptional importance under Criteria Consideration G of the National Register Criteria for Evaluation (U.S. Department of the

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Interior 1991). The Army has developed additional guidance for evaluating Cold War-era properties in DA PAM 200-4 (Section 3.d(2)(b)) as follows:

□ The Criterion of Exceptional Importance is applied to properties that are less than 50 years old in order to evaluate the National Register eligibility pursuant to 36 CFR 60.4. A Cold War property may have significance under National Register criteria A-D, due to association with major historical events or persons, technological or scientific design achievement, or as a fragile survivor of a class of properties. The significance of Cold War era properties may lie at the national level in association with military themes directly tied to the Cold War, or at the state or local level under other themes.

The Thematic Study and Guidelines: Identification and Evaluation of U.S. Army Cold War Era Military-Industrial Historic Properties (AEC 1997) documents the importance of the Army's military-industrial complex during the Cold Era and emphasizes the Army's direct response to the Cold War. Resources at APG that may possess qualities of significance for listing in the National Register of Historic Places under Criteria Consideration G will be those directly associated with the major APG missions of basic research, materiel development and testing, education, and medical activities. Resources constructed as administration, maintenance, storage, and housing and community support generally will not meet Criteria Consideration G. In addition to historical association, integrity of the resource is a critical component in the evaluation process. Resources that once served as laboratories or test facilities that have been remodeled for other uses, such as administration, may no longer possess sufficient integrity to convey their associations with important Cold War-era activities. Specific guidance on the application of the criteria for evaluation to Cold War era resources is contained in Chapter 7 of Thematic Study and Guidelines: Identification and Evaluation of U.S. Army Cold War Era Military-Industrial Historic Properties (AEC 1997).

Evaluation

Building E3244 is closely associated with the work of Dr. Robert E. Sheridan, a researcher at Edgewood from 1986 until his death in 2004. Dr. Sheridan's work is significant nationally for its investigations into neurophysiology, specifically the understanding of the processes of marine and amphibian toxins, the development of pharmacological treatments for botulinum toxins, and his toxicological data on low-level nerve agent exposures. Dr. Sheridan's knowledge of biological toxins and methods of transmittal to humans led him to establish stringent protocols for the safe handling of biological agents and an exemplary ten-year safety record. Building E3244 eventually received Centers for Disease Control (CDC) classification as a biosurety facility and the procedures and guidelines Dr. Sheridan established remain in place. In recent years, Dr. Sheridan testified before Gulf War Panel on the hypothesized exposure of military personnel to nerve agents and a link to Gulf War Syndrome and he served as an Inspector/Biological Weapons Expert for the United Nations Special Commission in Iraq (Aberdeen Proving Ground n.d.).

During his career, Dr. Sheridan authored or co-authored over forty manuscripts and four book chapters. His contributions to scientific research allowed the U.S. Army Medical Research Institute of Chemical Defense (USAMRICD) to fulfill its mission of developing countermeasures to biological toxins and in understanding the effects of exposure to low doses of nerve agents. Building E3244 illustrates Dr. Sheridan's contributions to the study of neurotoxins and is the best representative example of his productive life. Although Dr. Sheridan worked in Building E3244 for only three years of the Cold War era, his contributions to chemical research hold nationwide significance; therefore, it merits further consideration for eligibility to the National Register under Criterion B for its association with an individual who made substantial contributions to the mission of Edgewood Arsenal. Since the building is less than 50 years old, it must also satisfy the requirements of Criteria Consideration G. The significance of Dr. Sheridan's work does meet the threshold of exceptional significance within the theme of materiel development and testing.

Bibliography

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Building E3244

Page 8

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